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HESLIN ROTHENBERG FARLEY & MESITI PC
5 COLUMBIA CIRCLE
ALBANY, NY 12203

| EXAMINER |
|---|
| CHONG CRUZ, NADJA N |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| | Application No. | Applicant(s) |
| --- | --- | --- |
| | 10/645,128 | CHAINER ET AL. |
| **Office Action Summary** | Examiner | Art Unit | |
| | NADJA CHONG CRUZ | 3623 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on *21 August 2003*.
2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) *1-48* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) *1-48* is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on *21 August 2003* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All   b) ☐ Some * c) ☐ None of:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *22 August 2003*.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### Status of Claims

1.      This Non-Final action is in reply to the application filed on 21 August 2003.

2.      Claims 1-48 are currently pending and has been examined.

### Claim Rejections - 35 USC § 112

3.      The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4.      Claim 30 and 33 are rejected under 35 U.S.C. 112, first paragraph because a single means claim, i.e., where a means recitation does not appear in combination with another recited element of means, is subject to an undue breadth rejection under 35 U.S.C. 112, first paragraph. In re Hyatt, 708 F.2d 712, 714-715, 218 USPQ 195, 197 (Fed. Cir. 1983) (A single means claim which covered every conceivable means for achieving the stated purpose was held nonenabling for the scope of the claim because the specification disclosed at most only those means known to the inventor.). When claims depend on a recited property, a fact situation comparable to Hyatt is possible, where the claim covers every conceivable structure (means) for achieving the stated property (result) while the specification discloses at most only those known to the inventor. See MPEP 2164.08(a) Single Means Claim.

5.      The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6.      Claims 3, 23 and 37 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7.      Claims 3, 23 and 37 recites the limitation *the analysis*. There is insufficient antecedent basis for these limitations in the claims.

### Claim Rejections - 35 USC § 101

8.      35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9.      Claims 1-21 are rejected under 35 U.S.C. 101 based on Supreme Court precedent, and recent Federal Circuit decisions, the Office's guidance to examiners is that a § 101 process must (1) be tied to another statutory class (such as a particular apparatus) or (2) transform underlying subject matter (such as an article or materials) to a different state or thing. *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780,787-88 (1876).

10.     An example of a method claim that would not qualify as a statutory process would be a claim that recited purely mental steps. Thus, to qualify as a § 101 statutory process, the claim should positively recite the other statutory class (the thing or product) to which it is tied, for example by identifying the apparatus that accomplishes the method steps, or positively recite the subject matter that is being transformed, for example by identifying the material that is being changed to a different state.

11.     Here, applicant's method steps, fail the first prong of the new Federal Circuit decision since they are not tied to another statutory class, even though the limitation *automatically* is disclosed it can be interpret as "in a reflex manner (i.e., he answered automatically)" or "in a mechanism manner; by a mechanism (i.e., this door opens mechanically)" (www.dictionary.die.net/automatically). Therefore, the method steps can be performed without the use of a particular apparatus. Thus,

claims 1-21 are non-statutory since they may be preformed within the human mind. Claims 2-21

inherit the same deficiencies as claim 1 and are therefore rejected for the same reasons as claim

1.

12.     Claims 19-21 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-

statutory subject matter. As recited, claim 19 is directed toward logic, which is software per se.

However, under the current guidelines of 35 USC 101, computer software _must_ be tangibly

embodied on a computer readable medium, and, when executed by a computer processor,

perform the steps of the software. In their broadest reasonable interpretation and in light of the

specification, claims xx, as recited, can be interpreted to be embodied on abstract mediums such

as carrier waves and signals, and therefore not eligible for patent protection. Accordingly, claim

19 is not eligible for patent protection. Claims 20-21 inherit the same deficiencies as claim 19 and

are therefore rejected for the same reasons as claim 19.


**Claim Rejections - 35 USC § 103**

13.     The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as
set forth in section 102 of this title, if the differences between the subject matter sought to be
patented and the prior art are such that the subject matter as a whole would have been obvious
at the time the invention was made to a person having ordinary skill in the art to which said
subject matter pertains. Patentability shall not be negatived by the manner in which the invention
was made.

14.     The factual inquiries set forth in _Graham v. John Deere Co._, 383 U.S. 1, 148 USPQ 459 (1966),

that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1.      Determining the scope and contents of the prior art.
2.      Ascertaining the differences between the prior art and the claims at issue.
3.      Resolving the level of ordinary skill in the pertinent art.
4.      Considering objective evidence present in the application indicating obviousness or
        nonobviousness.

**15.**     Claims 1-48 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Lenny et al (US 2002/0060868 A1) hereinafter "Lenny" in view of Gray et al (US 6,249,887 B1) hereinafter "Gray".

**Examiner's Note**:  The Examiner has pointed out particular references contained in the prior art of record within the body of this action for the convenience of the Applicant.   Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply.   Applicant, in preparing the response, should consider fully the entire reference as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

**Claims 1 and 22:**

Lenny as shown discloses the following limitations:

- *automatically obtaining product usage information generated by one or more products* (see at least page 4, ¶ 0034: which teaches that "collecting the disc drive attributes" (e.g., product usage information), where Lenny suggests that SMART is a tool that automatically obtain disc drive attributes (e.g., product usage information generated by one or more products));

- *wherein the one or more products include autonomic logic* (see at least page 3 ¶ 0030: which teaches that "[m]ost of the programming for the SMART technology resides in the disc drive firmware 145." This teaches that the one or more products include autonomic logic (e.g., software));

- *and wherein the automatically obtaining is independent of product user input* (see at least page 3 ¶ 0030: which teaches that "[t]he disc drive firmware 145 and/or controller 142 perform most operations for collection and processing of SMART data and post the result to the host computer 140 indicating whether a disc drive failure is imminent" where Lenny suggests that SMART collects data automatically without user input);

Lenny does not disclose the following limitation, however Gray as shown, does

- *and automatically providing data relating to the product usage information to at least one interested entity* (see at least column 11, lines 51-60: which teaches that "[t]est data may then be periodically transmitted, e.g., e-mailed, to the central site for diagnosis, step 4. When anomalies are detected and diagnosed alarm notices and the diagnostic drive reliability trend chart (FIG. 9) may be transmitted, e.g., e-mailed, to the computer user along with suggested solutions such as backup up data on the suspect disk and upgrade the reliability of the disk drive, step 5." Where Gray suggests that after performing a monitoring test, the product usage information (e.g., disk drive anomalies) are send to a computer user (e.g., interested entity) automatically);

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the critical event log for a disk drive of Lenny with the apparatus and method for predicting failure of a disk drive as taught by Gray because "disk drive warranty providers can use it to provide replace-before-failure warrantees, an upgrade of their present replace-after-failure (and loss of user data) warrantees." Furthermore, it "reminds PC users when their disk drive should be replaced and presents the users with corrective options which may be conveniently investigated and ordered over the network." (Gray, see at least page 4 lines 29-36).

**Claim 2:**

The combination of Lenny / Gray teaches the limitations of Claim 1, as explained above. Furthermore, Lenny as shown discloses the following limitations:

- *wherein the automatically obtaining comprises automatically forwarding, by the one or more products, the product usage information, wherein the one or more products monitor one or more parameters of the one or more products* (see at least page 3, ¶ 0029: which teaches that "[s]MART generates alarm signals (e.g., in response to SMART "report status" command), and the software on the host computer 140

interprets the alarm signals. The host computer polls the disc drive on a regular basis to check the status" (e.g., monitoring) "of this "report status" command, and if the command signals imminent failure," (e.g., product usage information) "the host computer sends an alarm" (e.g., automatically forward) "to the end user or the system administrator." Lenny teaches that SMART monitors the disk drive attributes and forward the product usage information with disk drive monitoring data to the end user or the system administrator in order to analyze this information to create backup of data or replacement of the disc drive);

**Claims 3 and 23:**

The combination of Lenny / Gray teaches the limitations of Claims 1 and 22. Furthermore, Lenny as shown discloses the following limitations:

- *analyzing the obtained product usage information* (see at least page 4, ¶ 0038: which teaches that "[t]he Critical Event Log 121 contains historical information of the disc drive. All events, errors, and/or any disc drive operational information that are useful for failure analysis of a disc drive are stored in the Critical Event Log 121" where Lenny suggests that Critical Event log performs an analysis of the history of the disc drive (e.g., product usage information));

- *and wherein the data comprises at least a summary of the analysis* (see at least page 5, ¶ 0038: which teaches that "[t]he Critical Event Log allows the engineers to obtain a report of each disc drive. The report would show what happened to the disc drive prior to the failure." Where Lenny suggests that a report includes a summary of the analysis based on the information obtained from each disc drive);

**Claims 4, 24 and 38:**

The combination of Lenny / Gray teaches the limitations of Claims 1, 22 and 36. Furthermore, Gray as shown discloses the following limitations:

- *wherein the one or more products comprise at least one product from a global environment* (see at least column 11-12, lines 65-67 and 1-2, respectively and Figure 3a, which it illustrates the relationship between a central computer and a remote units under test, where the central computer provides the application to monitor each disk drive, which is "useful for hard disk manufacturers (e.g., one product from a global environment) "as it allows them to ascertain certain read standards for factory fresh disks which may be compared to data generated by periodically testing the disk to more accurately monitor the useful life of the disk");

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the critical event log for a disk drive of Lenny with the apparatus and method for predicting failure of a disk drive as taught by Gray because "disk drive warranty providers can use it to provide replace-before-failure warrantees, an upgrade of their present replace-after-failure (and loss of user data) warrantees." Furthermore, it "reminds PC users when their disk drive should be replaced and presents the users with corrective options which may be conveniently investigated and ordered over the network." (Gray, see at least page 4 lines 29-36).

**Claims 5 and 25:**

The combination of Lenny / Gray teaches the limitations of Claims 4 and 24, as explained above. Furthermore, Gray as shown discloses the following limitations:

- *using the obtained product usage information including the product usage information from the at least one product of the global environment to modify an attribute of one or more products of a local environment* (see at least column 11, lines 13-41: which teaches that it "provide services to individual computers on a network such as the Internet or a local area network" where "[s]ervice organizations include large operators of computers providing services to their constituents, commercial service organizations such as providers of computer maintenance services, warrantors of computer viability, and providers of computer hardware and software (e.g., at least

one product of the global environment) which "a computer center generates the individual failure probability analyses based upon disk drive test data provided to it over the network" (e.g., gathering product usage information) therefore "[w]hen the reliability drops below a predetermined level the central computer is notified with an alarm notice and the user receives a trouble/solution notice explaining the trouble and suggesting solutions." (e.g., possible modifications). Gray suggests that information about disk drives (e.g., disk drives connected to the central computer) are received in a central computer, it performs a diagnostic to each type of disk drive from an specific user (e.g., a product of a local environment) and then inform him/her a trouble/solution notice based on the individual failure probability analysis);

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the critical event log for a disk drive of Lenny with the apparatus and method for predicting failure of a disk drive as taught by Gray because "disk drive warranty providers can use it to provide replace-before-failure warrantees, an upgrade of their present replace-after-failure (and loss of user data) warrantees." Furthermore, it "reminds PC users when their disk drive should be replaced and presents the users with corrective options which may be conveniently investigated and ordered over the network." (Gray, see at least page 4 lines 29-36).

**Claims 6 and 26:**

The combination of Lenny / Gray teaches the limitations of Claims 1 and 22. Furthermore, Gray as shown discloses the following limitations:

- *automatically providing data relating to the product usage information back towards at least one product of the one or more products* (see at least column 11, lines 21-23: which teaches that "a computer center generates the individual failure probability analyses based upon disk drive test data provided to it over the network". Lenny teaches that after obtaining each type of disk drive test data, a computer center automatically generates an individual failure probability based on

that information. It is implicitly disclosed that the computer center contains all data

related to each type of disk drive data in order to provide an individual failure

probability for each type of disk drive connected to it);

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the

invention to combine the critical event log for a disk drive of Lenny with the apparatus and method

for predicting failure of a disk drive as taught by Gray because "disk drive warranty providers can

use it to provide replace-before-failure warrantees, an upgrade of their present replace-after-

failure (and loss of user data) warrantees." Furthermore, it "reminds PC users when their disk

drive should be replaced and presents the users with corrective options which may be

conveniently investigated and ordered over the network." (Gray, see at least page 4 lines 29-36).

**Claims 7 and 27:**

The combination of Lenny / Gray teaches the limitations of Claims 1 and 22. Furthermore, Gray

as shown discloses the following limitations:

- *automatically receiving information relating to the provided data from the at least
  one interested entity* (see at least Figures 3a and 7, which Figure 3 illustrates that in
  4. Diagnostic Analysis, information is automatically received from a individual
  computers' (e.g., interested entity) disk drive data as shown in Figure 7 when a
  disk drive is connected to the Central Computer via a network);

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the

invention to combine the critical event log for a disk drive of Lenny with the apparatus and method

for predicting failure of a disk drive as taught by Gray because "disk drive warranty providers can

use it to provide replace-before-failure warrantees, an upgrade of their present replace-after-

failure (and loss of user data) warrantees." Furthermore, it "reminds PC users when their disk

drive should be replaced and presents the users with corrective options which may be

conveniently investigated and ordered over the network." (Gray, see at least page 4 lines 29-36).

**Claims 8 and 28:**

The combination of Lenny / Gray teaches the limitations of Claims 1 and 22. Furthermore, Lenny as shown discloses the following limitations:

- *analyzing by the at least one interested entity the provided data* (see at least pages 4-5, ¶ 0038: which teaches that "[t]he Critical Event Log allows the engineers to obtain a report of each disc drive. The report would show what happened to the disc drive prior to the failure." Where Lenny suggests an engineer (e.g., one interested entity) analyze a report which includes a summary of the analysis based on the information obtained from each disc drive);

**Claims 9 and 29:**

The combination of Lenny / Gray teaches the limitations of Claims 8 and 28. Furthermore, Gray as shown discloses the following limitations:

- *automatically effecting a modification to a product under test, in response to the analysis* (see at least column 11, lines 7-11: which teaches that "each warning signal maybe automatically dispatched directly to the user, to authorized computer repair personnel, to the drive manufacturer and/or to any other desired recipient". Gray suggests that in response to the analysis, a warning signal is automatically sent. It is implicitly disclosed that after receiving a signal a modification is made to a product under test by the user or a computer repair personnel);

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the critical event log for a disk drive of Lenny with the apparatus and method for predicting failure of a disk drive as taught by Gray because "disk drive warranty providers can use it to provide replace-before-failure warrantees, an upgrade of their present replace-after-failure (and loss of user data) warrantees." Furthermore, it "reminds PC users when their disk drive should be replaced and presents the users with corrective options which may be conveniently investigated and ordered over the network." (Gray, see at least page 4 lines 29-36).

**Claim 10:**

The combination of Lenny / Gray teaches the limitations of Claim 1, as explained above. Furthermore, Gray as shown discloses the following limitations:

- *wherein the automatically obtaining and the automatically providing are performed by at least one processing unit coupled to the one or more products and the at least one interested entity* (see at least Figure 3a, which it illustrates a central computer (e.g., one processing unit) which is connected over the network to on-line computer(s) with drives to be tested (e.g., one or more products) from individual's computers (interested entity));

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the critical event log for a disk drive of Lenny with the apparatus and method for predicting failure of a disk drive as taught by Gray because "disk drive warranty providers can use it to provide replace-before-failure warrantees, an upgrade of their present replace-after-failure (and loss of user data) warrantees." Furthermore, it "reminds PC users when their disk drive should be replaced and presents the users with corrective options which may be conveniently investigated and ordered over the network." (Gray, see at least page 4 lines 29-36).

**Claims 11 and 14:**

The combination of Lenny / Gray teaches the limitations of Claims 1 and 13. Furthermore, Lenny as shown discloses the following limitations:

- *wherein the at least one interested entity comprises at least one of a designer, a creator, a developer, a constructor, an integrator* (see at least page 4, ¶ 0035: which teaches that "an engineer conducting the failure analysis would require information that shows what happened to the disc drive while the disc drive was in normal operation" where Lenny suggests that an engineer perform an analysis and develop improvements based on information provided from the disk drives);

In addition, Gray as shown discloses the following limitation:

- *a manufacturer, and a quality maintainer* (see at least column 11, lines 42-44: which teaches that "[m[ore particularly, a warrantor, maintainer, manufacturer or user of on-line computers" (e.g., interested entity) "may process, at the computer center, test data collected from on-line computers throughout the network.".)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the critical event log for a disk drive of Lenny with the apparatus and method for predicting failure of a disk drive as taught by Gray because "disk drive warranty providers can use it to provide replace-before-failure warrantees, an upgrade of their present replace-after-failure (and loss of user data) warrantees." Furthermore, it "reminds PC users when their disk drive should be replaced and presents the users with corrective options which may be conveniently investigated and ordered over the network." (Gray, see at least page 4 lines 29-36).

**Claim 12:**

The combination of Lenny / Gray teaches the limitations of Claim 1, as explained above. Furthermore, Gray as shown discloses the following limitations:

- *wherein the one or more products comprise one or more storage devices* (see at least column 11, lines 63-64: which teaches that "to analyze disk drives in all types of computers, including, but no limited to PC's, and mainframes". Gray suggests that it analyze more than one disk drives (e.g., one or more storage devices));

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the critical event log for a disk drive of Lenny with the apparatus and method for predicting failure of a disk drive as taught by Gray because "disk drive warranty providers can use it to provide replace-before-failure warrantees, an upgrade of their present replace-after-failure (and loss of user data) warrantees." Furthermore, it "reminds PC users when their disk drive should be replaced and presents the users with corrective options which may be conveniently investigated and ordered over the network." (Gray, see at least page 4 lines 29-36).

**Claims 13 and 30**

Lenny as shown discloses the following limitations:

- *wherein the product usage information is automatically generated by one or more products* (see at least page 4, ¶ 0034: which teaches that "collecting the disc drive attributes" (e.g., product usage information), where Lenny suggests that SMART is a tool that automatically obtain disc drive attributes (e.g., product usage information generated by one or more products));

- *the one or more products including autonomic logic* (see at least page 3 ¶ 0030: which teaches that "[m]ost of the programming for the SMART technology resides in the disc drive firmware 145." This teaches that the one or more products include autonomic logic (e.g., software));

- *to automatically monitor one or more parameters of the one or more products* (see at least page 3, ¶ 0028: which teaches that "[s]MART monitors a series of attributes" (e.g., one or more parameters) "that are indicators of an electronic or mechanical component failure. These attributes are chosen specifically for each individual disc drive model" (e.g., one or more products) "because drive architectures vary from one model to another");

Lenny does not disclose the following limitation, however Gray as shown, does:

- *automatically receiving by at least one interested entity data relating to product usage information of one or more products* (see at least Figures 3a and 7, which Figure 3 illustrates that in 4. Diagnostic Analysis, information is automatically received from a individual computers' (e.g., interested entity) disk drive data as shown in Figure 7 when a disk drive is connected to the Central Computer via a network);

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the critical event log for a disk drive of Lenny with the apparatus and method for predicting failure of a disk drive as taught by Gray because "disk drive warranty providers can use it to provide replace-before-failure warrantees, an upgrade of their present replace-after-failure (and loss of user data) warrantees." Furthermore, it "reminds PC users when their disk drive should be replaced and presents the users with corrective options which may be conveniently investigated and ordered over the network." (Gray, see at least page 4 lines 29-36).

**Claims 15 and 31:**

The combination of Lenny / Gray teaches the limitations of Claims 13 and 30. Furthermore, Gray as shown discloses the following limitations

- *generating by the at least one interested entity analysis information based on the automatically received data* (see at least Figure 3a, which it illustrates that a user of on-line computer (e.g., interested entity) perform a testing to a drive disk, then based on the testing results (e.g., automatically received data), an analysis information is generated as shown in Figure 7);

- *and automatically forwarding from at least one interested entity back towards at least one product of the one or more products the analysis information* (see at least column 11, lines 21-23: which teaches that "a computer center generates the individual failure probability analyses based upon disk drive test data provided to it over the network". Lenny teaches that after obtaining each type of disk drive test data, a computer center automatically generates an individual failure probability based on that information and sends it to the user. It is implicitly disclosed that the computer center contains all data related to each type of disk drive data in order to provide an individual failure probability for each type of disk drive connected to it);

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the critical event log for a disk drive of Lenny with the apparatus and method

for predicting failure of a disk drive as taught by Gray because "disk drive warranty providers can use it to provide replace-before-failure warrantees, an upgrade of their present replace-after-failure (and loss of user data) warrantees." Furthermore, it "reminds PC users when their disk drive should be replaced and presents the users with corrective options which may be conveniently investigated and ordered over the network." (Gray, see at least page 4 lines 29-36).

**Claims 16 and 32:**

The combination of Lenny / Gray teaches the limitations of Claims 13 and 30. Furthermore, Gray as shown discloses the following limitations:

- *automatically effecting by at least one interested entity a modification to a product under test based on the automatically received data* (see at least column 11, lines 7-11: which teaches that "each warning signal maybe automatically dispatched directly to the user, to authorized computer repair personnel, to the drive manufacturer and/or to any other desired recipient". Gray suggests that in response to the analysis, a warning signal is automatically sent. It is implicitly disclosed that after receiving a signal a modification is made to a product under test by the user or a computer repair personnel);

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the critical event log for a disk drive of Lenny with the apparatus and method for predicting failure of a disk drive as taught by Gray because "disk drive warranty providers can use it to provide replace-before-failure warrantees, an upgrade of their present replace-after-failure (and loss of user data) warrantees." Furthermore, it "reminds PC users when their disk drive should be replaced and presents the users with corrective options which may be conveniently investigated and ordered over the network." (Gray, see at least page 4 lines 29-36).

**Claims 17 and 33:**

Lenny as shown discloses the following limitations:

- *wherein the product usage information is automatically generated by the one or more products* (see at least page 4, ¶ 0034: which teaches that "collecting the disc drive attributes" (e.g., product usage information), where Lenny suggests that SMART is a tool that automatically obtain disc drive attributes (e.g., product usage information generated by one or more products));

- *the one or more products including autonomic logic* (see at least page 3 ¶ 0030: which teaches that "[m]ost of the programming for the SMART technology resides in the disc drive firmware 145." This teaches that the one or more products include autonomic logic (e.g., software));

- *to automatically monitor one or more parameters of the one or more products* (see at least page 3, ¶ 0028: which teaches that "[s]MART monitors a series of attributes" (e.g., one or more parameters) "that are indicators of an electronic or mechanical component failure. These attributes are chosen specifically for each individual disc drive model" (e.g., one or more products) "because drive architectures vary from one model to another");

Lenny does not disclose the following limitation, however Gray as shown, does:

- *automatically receiving by at least one product receiver data relating to product usage information of one or more products* (see at least Figures 3a and 7, which Figure 3 illustrates that in 4. Diagnostic Analysis, information is automatically received from a disk drive data as shown in Figure 7 when a disk drive is connected to the Central Computer via a network);

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the critical event log for a disk drive of Lenny with the apparatus and method for predicting failure of a disk drive as taught by Gray because "disk drive warranty providers can use it to provide replace-before-failure warrantees, an upgrade of their present replace-after-

failure (and loss of user data) warrantees." Furthermore, it "reminds PC users when their disk drive should be replaced and presents the users with corrective options which may be conveniently investigated and ordered over the network." (Gray, see at least page 4 lines 29-36).

**Claims 18 and 34:**

The combination of Lenny / Gray teaches the limitations of Claims 17 and 33. Furthermore, Gray as shown discloses the following limitations:

- *automatically effecting by at least one product receiver a modification to an attribute associated with at least one product of the one or more products* (see at least column 11, lines 7-11: which teaches that "each warning signal maybe automatically dispatched directly to the user, to authorized computer repair personnel, to the drive manufacturer and/or to any other desired recipient". Gray suggests that in response to the analysis, a warning signal is automatically sent. It is implicitly disclosed that after receiving a signal a modification to an attribute (e.g., disk drive performance) is made to a product by the user or a computer repair personnel);

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the critical event log for a disk drive of Lenny with the apparatus and method for predicting failure of a disk drive as taught by Gray because "disk drive warranty providers can use it to provide replace-before-failure warrantees, an upgrade of their present replace-after-failure (and loss of user data) warrantees." Furthermore, it "reminds PC users when their disk drive should be replaced and presents the users with corrective options which may be conveniently investigated and ordered over the network." (Gray, see at least page 4 lines 29-36).

**Claim 19:**

Lenny as shown discloses the following limitations:

- *the logic to automatically obtain product usage information relating to one or more products* (see at least page 4, ¶ 0034: which teaches that "collecting the disc drive

attributes" (e.g., product usage information), where Lenny suggests that SMART is a tool that automatically obtain disc drive attributes (e.g., product usage information relating to one or more products));

- *wherein the one or more products include autonomic logic* (see at least page 3 ¶ 0030: which teaches that "[m]ost of the programming for the SMART technology resides in the disc drive firmware 145." This teaches that the one or more products include autonomic logic (e.g., software));

- *to automatically generate the product usage information independent of product user input* (see at least page 3 ¶ 0030: which teaches that "[t]he disc drive firmware 145 and/or controller 142 perform most operations for collection and processing of SMART data and post the result to the host computer 140 indicating whether a disc drive failure is imminent" where Lenny suggests that SMART collects and process data automatically without user input);

Lenny does not disclose the following limitation, however Gray as shown, does:

- *installing logic on at least one processing unit* (see at least column 11, lines 23-27: which teaches that "[t]he computer center down loads a small software package" (e.g., logic) "which is automatically installed in the served computer population" (e.g., processing unit) "for the purpose of collecting operational data and transmitting it to the central computer"

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the critical event log for a disk drive of Lenny with the apparatus and method for predicting failure of a disk drive as taught by Gray because "disk drive warranty providers can use it to provide replace-before-failure warrantees, an upgrade of their present replace-after-failure (and loss of user data) warrantees." Furthermore, it "reminds PC users when their disk

drive should be replaced and presents the users with corrective options which may be conveniently investigated and ordered over the network." (Gray, see at least page 4 lines 29-36).

**Claim 20:**

The combination of Lenny / Gray teaches the limitations of Claim 19. Furthermore, Lenny as shown discloses the following limitations:

- *wherein the logic automatically disseminates data relating to the product usage information* (see at least page 3 ¶ 0030: which teaches that "[t]he disc drive firmware 145 and/or controller 142 perform most operations for collection and processing of SMART data and post the result to the host computer 140 indicating whether a disc drive failure is imminent" where Lenny suggests that SMART collects and distribute disk drive data (e.g., product usage information) automatically to the host computer);

**Claim 21:**

The combination of Lenny / Gray teaches the limitations of Claim 19. Furthermore, Lenny as shown discloses the following limitations:

- *wherein the logic automatically analyzes the product usage information* (see at least page 3, ¶ 0029: which teaches that "[s]MART generates alarm signals (e.g., in response to SMART "report status" command), and the software on the host computer 140 interprets the alarm signals. The host computer polls the disc drive on a regular basis to check the status of this "report status" command, and if the command signals imminent failure, the host computer sends an alarm to the end user or the system administrator." Where Lenny suggests that the host computer analyze the product usage information every time it check the status of the disk drive);

**Claim 35:**

Lenny as shown discloses the following limitations:

- *at least one processing unit to automatically obtain product usage information generated by one or more products* (see at least page 4, ¶ 0034: which teaches that "collecting the disc drive attributes" (e.g., product usage information), where Lenny suggests that SMART is a tool that automatically obtain disc drive attributes (e.g., product usage information generated by one or more products) which it is implicitly disclosed that SMART post the result to the host computer (e.g., one processing unit));

- *wherein the one or more products include autonomic logic* (see at least page 3 ¶ 0030: which teaches that "[m]ost of the programming for the SMART technology resides in the disc drive firmware 145." This teaches that the one or more products include autonomic logic (e.g., software));

- *and wherein the automatically obtaining is independent of product user input* (see at least page 3 ¶ 0030: which teaches that "[t]he disc drive firmware 145 and/or controller 142 perform most operations for collection and processing of SMART data and post the result to the host computer 140 indicating whether a disc drive failure is imminent" where Lenny suggests that SMART collects data automatically without user input);

Lenny does not disclose the following limitation, however Gray as shown, does:

- *and to automatically provide data relating to the product usage information to at least one interested entity* (see at least column 11, lines 51-60: which teaches that "[t]est data may then be periodically transmitted, e.g., e-mailed, to the central site for diagnosis, step 4. When anomalies are detected and diagnosed alarm notices and the diagnostic drive reliability trend chart (FIG. 9) may be transmitted, e.g., e-mailed, to the computer user along with suggested solutions such as backup up data on the suspect disk and upgrade the reliability of the disk drive, step 5." Where Gray suggests that after performing a monitoring test, the product usage

information (e.g., disk drive anomalies) are send to a computer user (e.g., interested entity) automatically);

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the critical event log for a disk drive of Lenny with the apparatus and method for predicting failure of a disk drive as taught by Gray because "disk drive warranty providers can use it to provide replace-before-failure warrantees, an upgrade of their present replace-after-failure (and loss of user data) warrantees." Furthermore, it "reminds PC users when their disk drive should be replaced and presents the users with corrective options which may be conveniently investigated and ordered over the network." (Gray, see at least page 4 lines 29-36).

**Claim 36:**

Lenny as shown discloses the following limitations:

- *at least one computer usable medium having computer readable program code logic to facilitate provision of product usage information to interested entities, the computer readable program code logic comprising* (see at least Abstract: which teaches that "a computer readable media" to log "critical events" (e.g., product usage information) for disk drives);

- *obtain logic to automatically obtain product usage information generated by one or more products* (see at least page 4, ¶ 0034: which teaches that "collecting the disc drive attributes" (e.g., product usage information), where Lenny suggests that SMART is a tool that automatically obtain disc drive attributes (e.g., product usage information generated by one or more products));

- *wherein the one or more products include autonomic logic* (see at least page 3 ¶ 0030: which teaches that "[m]ost of the programming for the SMART technology resides in the disc drive firmware 145." This teaches that the one or more products include autonomic logic (e.g., software));

- *and wherein the automatically obtaining is independent of product user input* (see at least page 3 ¶ 0030: which teaches that "[t]he disc drive firmware 145 and/or controller 142 perform most operations for collection and processing of SMART data and post the result to the host computer 140 indicating whether a disc drive failure is imminent" where Lenny suggests that SMART collects data automatically without user input);

Lenny does not disclose the following limitation, however Gray as shown, does:

- *and provide logic to automatically provide data relating to the product usage information to at least one interested entity* (see at least column 11, lines 51-60: which teaches that "[t]est data may then be periodically transmitted, e.g., e-mailed, to the central site for diagnosis, step 4. When anomalies are detected and diagnosed alarm notices and the diagnostic drive reliability trend chart (FIG. 9) may be transmitted, e.g., e-mailed, to the computer user along with suggested solutions such as backup up data on the suspect disk and upgrade the reliability of the disk drive, step 5." Where Gray suggests that after performing a monitoring test, the product usage information (e.g., disk drive anomalies) are send to a computer user (e.g., interested entity) automatically);

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the critical event log for a disk drive of Lenny with the apparatus and method for predicting failure of a disk drive as taught by Gray because "disk drive warranty providers can use it to provide replace-before-failure warrantees, an upgrade of their present replace-after-failure (and loss of user data) warrantees." Furthermore, it "reminds PC users when their disk drive should be replaced and presents the users with corrective options which may be conveniently investigated and ordered over the network." (Gray, see at least page 4 lines 29-36).

**Claim 37**

As per **Claim 37**, this claim encompasses substantially the same scope as claim 3. Accordingly, claim 37 is rejected in substantially the same manner as claim 3, as described above.

**Claim 39**

As per **Claim 39**, this claim encompasses substantially the same scope as claim 5. Accordingly, claim 39 is rejected in substantially the same manner as claim 5, as described above.

**Claim 40**

As per **Claim 40**, this claim encompasses substantially the same scope as claim 6. Accordingly, claim 40 is rejected in substantially the same manner as claim 6, as described above.

**Claim 41**

As per **Claim 41**, this claim encompasses substantially the same scope as claim 7. Accordingly, claim 41 is rejected in substantially the same manner as claim 7, as described above.

**Claim 42**

As per **Claim 42**, this claim encompasses substantially the same scope as claim 8. Accordingly, claim 42 is rejected in substantially the same manner as claim 8, as described above.

**Claim 43**

As per **Claim 43**, this claim encompasses substantially the same scope as claim 9. Accordingly, claim 43 is rejected in substantially the same manner as claim 9, as described above.

**Claim 44:**

Lenny as shown discloses the following limitations:

- *at least one computer usable medium having computer readable program code logic to facilitate receipt of data, the computer readable program code logic comprising* (see at least Abstract: which teaches that "a computer readable media" to log "critical events" (e.g., product usage information) for disk drives);

- *wherein the product usage information is automatically generated by one or more products* (see at least page 4, ¶ 0034: which teaches that "collecting the disc drive

attributes" (e.g., product usage information), where Lenny suggests that SMART is a tool that automatically obtain disc drive attributes (e.g., product usage information generated by one or more products));

- *the one or more products including autonomic logic* (see at least page 3 ¶ 0030: which teaches that "[m]ost of the programming for the SMART technology resides in the disc drive firmware 145." This teaches that the one or more products include autonomic logic (e.g., software));

- *to automatically monitor one or more parameters of the one or more products* (see at least page 3, ¶ 0028: which teaches that "[s]MART monitors a series of attributes" (e.g., one or more parameters) "that are indicators of an electronic or mechanical component failure. These attributes are chosen specifically for each individual disc drive model" (e.g., one or more products) "because drive architectures vary from one model to another");

Lenny does not disclose the following limitation, however Gray as shown, does:

- *receive logic to automatically receive by at least one interested entity data relating to product usage information of one or more products* (see at least Figures 3a and 7, which Figure 3 illustrates that in 4. Diagnostic Analysis, information is automatically received from a individual computers' (e.g., interested entity) disk drive data as shown in Figure 7 when a disk drive is connected to the Central Computer via a network);

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the critical event log for a disk drive of Lenny with the apparatus and method for predicting failure of a disk drive as taught by Gray because "disk drive warranty providers can use it to provide replace-before-failure warrantees, an upgrade of their present replace-after-failure (and loss of user data) warrantees." Furthermore, it "reminds PC users when their disk

drive should be replaced and presents the users with corrective options which may be conveniently investigated and ordered over the network." (Gray, see at least page 4 lines 29-36).

**Claim 45**

As per **Claim 45**, this claim encompasses substantially the same scope as claim 15. Accordingly, claim 45 is rejected in substantially the same manner as claim 15, as described above.

**Claim 46**

As per **Claim 46**, this claim encompasses substantially the same scope as claim 16. Accordingly, claim 46 is rejected in substantially the same manner as claim 16, as described above.

**Claim 47:**

Lenny as shown discloses the following limitations:

- *at least one computer usable medium having computer readable program code logic to facilitate receipt of data, the computer readable program code logic comprising* (see at least Abstract: which teaches that "a computer readable media" to log "critical events" (e.g., product usage information) for disk drives);

- *wherein the product usage information is automatically generated by the one or more products* (see at least page 4, ¶ 0034: which teaches that "collecting the disc drive attributes" (e.g., product usage information), where Lenny suggests that SMART is a tool that automatically obtain disc drive attributes (e.g., product usage information generated by one or more products));

- *the one or more products including autonomic logic*(see at least page 3 ¶ 0030: which teaches that "[m]ost of the programming for the SMART technology resides in the disc drive firmware 145." This teaches that the one or more products include autonomic logic (e.g., software));

- *to automatically monitor one or more parameters of the one or more products*(see at least page 3, ¶ 0028: which teaches that "[s]MART monitors a series of attributes" (e.g., one or more parameters) "that are indicators of an electronic or

mechanical component failure. These attributes are chosen specifically for each individual disc drive model" (e.g., one or more products) "because drive architectures vary from one model to another");

Lenny does not disclose the following limitation, however Gray as shown, does:

- *receive logic to automatically receive by at least one product receiver data relating to product usage information of one or more products* (see at least Figures 3a and 7, which Figure 3 illustrates that in 4. Diagnostic Analysis, information is automatically received from a disk drive data as shown in Figure 7 when a disk drive is connected to the Central Computer via a network);

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the critical event log for a disk drive of Lenny with the apparatus and method for predicting failure of a disk drive as taught by Gray because "disk drive warranty providers can use it to provide replace-before-failure warrantees, an upgrade of their present replace-after-failure (and loss of user data) warrantees." Furthermore, it "reminds PC users when their disk drive should be replaced and presents the users with corrective options which may be conveniently investigated and ordered over the network." (Gray, see at least page 4 lines 29-36).

**Claim 48**

As per **Claim 48**, this claim encompasses substantially the same scope as claim 18. Accordingly, claim 48 is rejected in substantially the same manner as claim 18, as described above.

## Conclusion

16.    The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Bandera et al (US 6,223,252 B1) discloses a hot spare light weight mirror for raid system.

- Lenny et al (US 2002/0036855 A1) discloses a self-contained disc drive write authentication test.

- Hajji (US 6,415,189 B1) discloses a method and system for predicting disk drive failures.

- Warwick et al (US 6,460,151) discloses a system and method for predicting storage devices failures.

- Gray et al (US 2002/0053046 A1) discloses an apparatus and method for predicting failure of a disk drive.

- Polich et al (US 5,090,014) discloses an identifying likely failure points in a digital data processing system.

Any inquiry of a general nature or relating to the status of this application or concerning this communication or earlier communications from the Examiner should be directed to **Nadja Chong** whose telephone number is **571.270.3939**. The Examiner can normally be reached on Monday-Friday, 9:30am-5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, **BETH VAN DOREN** can be reached at **571.272.6737**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://portal.uspto.gov/external/portal/pair <http://pair-direct.uspto.gov >. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866.217.9197** (toll-free).

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/Nadja Chong/Examiner, Art Unit 3623

18 June 2008


/C. Michelle Tarae/
Primary Examiner, Art Unit 3623